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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,483	10/02/2003	Michael J. Zipparo	41941-00351	1457

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EXAMINER	
FAYYAZ, NASHMIYA SAQIB	
ART UNIT	**PAPER NUMBER**
2856	

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/678,483	ZIPPARO ET AL.	
	Examiner	Art Unit	
	Nashmiya S. Fayyaz	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 September 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1-6, 11-15, 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP- 95090 (Sato et al).

As to claims 1-4, Sato et al disclose, as best can be determined at this time, an ultrasonic probe including a support member (fix table 36 and backing 38/40), signal cable 12 with a plurality of conductors (internal conductors 50) which extend from one side to the other and have parallel paths, the conductors extending to an ultrasound array 40a with plural elements, see Fig. 2 and Abstract translation. As to claim 5, first member 36 and second member 38 being interconnected with the conductors extending therebetween. As to claim 6, there appear to be channels extending through the support. As to claims 11-12, the separated portions being formed by 48. As to claim13, note piezoelectric material 16 being separated. As to claim 14, note elements are defined by pads 22a, 22b and 40a. As to claim 15, note layer 20. As to claim 18, note the primary portion extends into the cable. As to claims 20-21, note the multi cable appears to be made of non-conductive material (drawing symbol hatching in Fig.2) and flexible material where cable 32 are separately interconnected in parallel relations. As to claim 19, further inclusion of a coupler is considered as having

been obvious to one of ordinary skill in the art at the time of the invention to have included since it is old and well-known to couple an ultrasonic transducer array to an imaging system for visualizing the area being scanned by the array.

3. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller David et al- U.S. Patent # 5,267,221.

As to claims 1-14, Miller David et al disclose an acoustic transducer array including a support member 37a and 37b, a signal cable 19 comprising a plurality of conductive members 39 extending along and separately embedded in member 37a/b where the conductive members extend through the support member and an ultrasound transducer array of transducer elements 13, each connected to the conductive elements, see Fig. 5 and col. 8, lines 35-45. It is noted that the conductors 39 extend through element 19 which is referred to as a "circuit board" which can be considered the "signal cable" given the discussion in col. 2,lines 44-52 which indicates that the circuit element "may be a printed circuit board, flexible cable or semiconductor element". Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have indicated that the conductors extend through the support member from a "signal cable" since the circuit element 19 has clearly been identified as either a flexible cable or a printed circuit board. As to claim 2, note Fig. 5 embodiment figure showing the two sides. As to claims 3-4, note fig. 5 showing parallel paths of conductors 39 and openings for the conductors. As to claims 5-6, note the Fig. 5 embodiment

with layers 37a and 37b with channels for conductors 39. As to claim 7, note col. 6, lines 11-15 or note material 37c for acoustic dampening material. As to claim 9, note that material 37c is in the form of a rod indicating substantially surrounding the conductors 39 as in Fig. 6. As to claim 10, note materials 37a and 37b in fig.5 being adjoined portions or materials 37c and d being adjoined. As to claims 11-12, designation of portions is evident in noting Figs. 4-9 in which a different conductor extends through a different "portion" and connected to different transducer elements. As to claim 13, note that element 13 has been described as a piezoelectric element, see col. 1, lines 39-41. As to claim 14, note conductive layers 35/43. As to claim 8, usage of dampening material of a 1 dB/cm MHz dampening index is not specified. However, it appears that such a dampening index is old and well-known and Applicant has not illustrated unexpected results. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have determined the proper dampening index required for the field of testing being performed without having performed undue experimentation.

4. Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller et al in view of Palczewska et al (U.S. Patent # 5,920,972). As to claims 15-17, specifics of the piezoelectric layer are not provided in Miller et al. impedance matching at surface 21 is disclosed in col. 1, lines 55-58. However, specifics of the impedance matching as well as a ground member are not

specifically given. In a related prior art device, Palczewska et al disclose a multilayer transducer array with piezo layers 12 and 22 and further top the piezo layer with a ground layer 44 and matching layers 45 and 47, see Fig. 3. Inclusion of such an expediency would have been obvious to one of ordinary skill in the art at the time of the invention since Palczewska et al disclose that such layering improves impedance matching , see col. 5, lines 35 -61.

5. Claims 18-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller et al in view of Ptchelintsev et al- U.S. Patent # 6,546,803. As to claims 18-29, Miller et al disclose the circuit element as a cable (col.2, lines 44 et seq) but do not **illustrate** the cable extending or extending to a coupler for connection to an imaging system. In a related prior art device, Ptchelintsev et al disclose a closely related ultrasonic array transducer 12 with cable 18 extending to a multiplexer coupling to a computer 46 and pulser/receiver used for imaging, see col. 2, lines 18-32 and fig. 2. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have included such a cable coupling to an imaging system since Miller et al disclose "image resolution" in col. 1, lines 45 et seq. As to claim 20, note the cable 18 appears to be flexible and is recited as a coaxial cable. As to claim 21, note there is apparently an electrical connection to the multiplexer 42 suggesting a conductive member. As to claim 22, note claims 1 and 8 rejections. As to claims 23-24, see claim 3-4 rejection. As to claim 25, note claim 5 rejection. As to claim 26, see claim 9

rejection. As to claims 27-29, inclusion of a plurality of cables is depicted in the embodiment of Fig. 9 and therefore usage of plural cables would have been obvious to one of ordinary skill in the art at the time of the invention to have included as an alternative to a single cable as in Ptchelintsev et al.

Response to Arguments

6. Applicant's arguments with respect to claims 1-29 have been considered but are moot in view of the new ground(s) of rejection.

Response to Amendment

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nashmiya S. Fayyaz whose telephone number is 571-272-2192. The examiner can normally be reached on Mondays and Thursdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron E. Williams can be reached on 571-272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
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Art Unit 2856

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12/12/05